CONTENT ANALYSIS OF ADVERGAMES IN FOOD AND BEVERAGE BRAND WEBSITES AIMED AT CHILDREN: IMMERSIVE MARKETING PRACTICES IN SCORING SYSTEMS OF ADVERGAMES

by

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A THESIS

submitted in partial fulfillment of the requirements for the degree

MASTER OF SCIENCE

A.Q. Miller School of Journalism and Mass Communications
College of Arts and Sciences

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2010

Approved by:

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Abstract

Since 2000s, advergames, a particular form of branded entertainment that features advertising messages, logos, and trade characters in a game format, have become popular. The impact of advergmaes on childhood obesity, however, has been concerned among consumer groups and parents. Advertisers may use advergame scoring systems to encourage children to consume junk foods, to persuade them to revisit the Websites to help them to become addicted to the games, to reinforce children's bad eating habits in advergames with voices or rewards, and to attract children with animated spokes characters and avatars.

The purpose of this study is to examine in-depth components of scoring systems of advergames, providing policy makers and researchers with insights about advergames. Brand integration in scoring systems of advergames appeared on food companies' websites was explored with the descriptive characteristics of the roles of brands, such as gaming tools or equipment or main objects or in the backgrounds of games. A content analysis of 67 food companies' websites aiming to children will be done to critically evaluate the practice of online food marketing and advergames targeting children. Results of this study indicates that the prevalence of junk food (e.g., snack foods, sweets, convenience entrees and meals and soft drinks, and articicially flavoured beverages), different types of brand integration (e.g., secondary objects or primary objects) in advergames scoring systems, virtual food consumption and food brand exposures to children in advergames, and the behavior of animated characters used in scoring systems in advergames. Understanding the immersive marketing of scoring systems in food advergames can provide valuable insights into how to establish appropriate regulations for online food marketing to children.

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Introduction

Advergames, a particular form of branded entertainment that features advertising messages, logos, and trade characters in a game format, have become popular since the 2000s (Moore, 2006). In 2006, the advertising industry spent about $370 million on online advergames, and this expenditure is expected to increase to more than $2 billion by 2012 (Center for Media Research, 2007). The market for online advergames is projected to touch $68 billion by 2012 in the US alone (Business Standard, 2010). It is reported that 78.1% of children aged six to eleven years who go online report that they play games in online (American Kids Study, 2007).

Recently, food advergames targeting children have become highly sophisticated through the use of immersive marketing tactics which promote deep intimacy between marketers and children by breaking down traditional barriers between entertaining content and commerce (Montgomery, 2000). The combination of advertisements and games provides consumers a "branded entertainment" environment in which a brand is inserted in an entertainment context (Moore, 2006). For example, children often encounter food brand identifiers such as food product packages, brand characters, and brand logos when they play advergames on food company Web sites (Lee, Choi, Quilliam, & Cole, 2009). The consumer groups and parents' concern is that repeated exposure to embedded brand identifiers may influence children's liking for particular brand names and product packages (Janiszewski, 1988, 1990) and it may affect their brand preferences and eating habits. Since the line between advergames and entertainment contents is obscured (An & Stern, In press), it is assumed that children do not understand those immersive marketing tactics.

New media, such as the Internet, have facilitated immersive food marketing to children. Online entertainment media are fundamentally different from traditional media in terms of how they convey advertising messages. While a television viewer is passively exposed to advertising, an online game player actively typically engages in these advertising games with a high level of attention (Nicovich, 2005). Thus, the effectiveness of advertising messages in online games may be weaker than in television advertising (Lee & Faber, 2007). However, when children play online games, their primary attention is assigned to "playing the game" *per se*, while brand messages in the background, such as billboard advertising, are delivered in a secondary manner. As a result, children may pay more attention to the primary tasks of the advergames, such as obtaining scores, completing missions, and following the gaming rules, rather than processing the brand information embedded in the background of advergames. Little scholarly has been paid to such primary tasks of advergames, but much of the literature describes the characteristics of the brand messages inserted in advergames in the background, putting aside the question of how immersive marketing practices in the scoring system are implemented.

While the persuasive nature of food marketing to children is being debated (Moore, 2006), the Institute of Medicine (2005) recommends marketers to use marketing practices to promote high-nutrient and low-calorie foods. Recent studies indicate that marketers use advergames for candy and gum or food and beverage products that are high in sugar and low in nutrients (Lee, Choi, Quilliam, & Cole, 2009; Moore & Rideout, 2007). Those studies examine how food marketers use the scoring systems of online advergames to promote unhealthful food to children. Investigating the interactive tactics that are used in advergame scoring systems, such as persuading children to revisit components of games, encouraging them to over-consume certain foods, reinforcing their online behaviors, and the using animated spokes characters, has

important implications for public health issues because those components may propel childhood obesity through the repetitive exposure of low-nutrient and high-calorie foods and beverage products to children. Understanding the immersive marketing of scoring systems in food advergames can provide valuable insights into how to establish appropriate regulations for online food marketing to children.

Review of the literature

Background

In recent years, health officials have become alarmed by the rapid increase of obesity among American children. According to the Centers for Disease Control and Prevention (2004), the proportion of overweight children ages 6-11 has more than doubled and the rate for adolescents has tripled since 1980. Today, about 10% of 2- to 5-year-olds are overweight. Moreover, 20% of children ages 2-5 are "at risk" of being overweight. The increase in childhood obesity has a potential to trigger huge national health care costs because obese children commonly have medical complications such as hypertension, type 2 diabetes, respiratory ailments, orthopedic problems, trouble sleeping, and depression, and 80% of overweight children and adolescents continue to be obese in adulthood (Styne, 2001).

A recent IOM study concluded that food marketing is responsible for children's current food preferences, requests, and consumption (IOM, 2005). It was reported that at least 30% of the calories in the average child's diet derive from sweets, soft drinks, salty snacks, and fast food. Soft drinks account for more than 10% of the calorie intake of many children. One of the critical potential contributors to this disconcerting trend is food companies' heavy marketing to

children (Moore, 2006). Major sources of revenue for food companies are junk foods such as candies, chewing gum, and sweet or salty snacks. American children spend about $30 billion of their own money annually on such foods. The annual marketing budgets of many companies to support sales of these foods aimed at children are estimated at $10 billion in total (Koplan, Liverman, & Kraak, 2005; Nestle, 2006).

An increasingly popular food marketing practice aimed at children is online advergames (Chester & Montgomery, 2007; Lee at al., 2009; Mallinckrodt & Mizerski, 2007; Moore, 2006; Moore & Rideout, 2007; Weber, Story & Harnack, 2006). Advergames have become one of the most profitable marketing promotions because they creatively integrate food brands into interactive games in a cost-effective way (Chester & Montgomery, 2007; Moore & Rideout, 2007). A key goal in the advergames is to expose children to food brands and products and to encourage them to purchase the products (IOM, 2005). Advertisers build custom-made online advergames using brand identifiers, such as brand logos, brand characters, product packages, corporate logos, and pictures of food items. These brand identifiers are often integrated into the story lines of the advergames, causing younger children to have difficulty differentiating advertising messages from the entertaining contents of advergames (Lee et al., 2009; Moore & Rideout, 2007). In an attempt to examine online food marketing and advergames that are aimed at children, several studies investigated the contents of advergames (Kaiser Family Foundation, 2006; Lee, et al., 2009; Moore & Rideout, 2007; Youn & Lee, 2008; Weber, Story & Harnack, 2006).

One of the main concerns regarding online food advergames targeting children is that the advertised food products lack of nutritional value. Candy, gum, cereals, soft drinks, and salty snacks are frequently featured in advergames (Lee et al., 2009). The nutritional contents of food

products advertised to children on advergames were found to be high in fat, sodium, sugar, and cholesterol and low in nutritional values (Lee et al., 2009; Moore & Rideout, 2007). Lee et al. (2009) found out that about 59.9% of the foods advertised on advergames were high in sugar and 30.3% were high in fat. Candy, sweetened breakfast cereals, and quick-serve restaurants were the most frequently advertised products and services found in advergames (Alvy & Calvert, 2008).

The role of brands in advergames has also been examined. Brand identifiers such as brand logos, brand products, and product packages are integrated in food advergames in diverse ways. Sometimes, brand identifiers appear as active game components such as gaming tools or equipment that is used to obtain scores (Nelson, 2002). At other times, brand identifiers are embedded in advergames as main objects that a game player needs to obtain to complete the game. The backgrounds of games, such as billboards or scenes, also contain branded foods; this is similar to product placement in movies or television programs. In their study of food advergames contents, Lee and her colleagues (2009) discovered that 86.5% of the games integrated some type of brand identifier, such as brand logos (90.0% of the advergames), product packages (40.5%), branded food items (36.8%), and brand spokes characters (36.8%). In addition, advertisers use brand identifiers as active game components (6.1% of the advergames studied use brands as tools or equipment, 46.7% of the games use brands as primary objects that children are asked to obtain to win games, and 22% use brand identifiers as secondary objects that children are encouraged to collect in order to earn bonus points or extra energy).

The educational potential of interactive food advergames has been investigated (Lee et al., 2009; Moore & Rideout, 2007). In general, advergames have several goals: (1) to entertain children, providing them interactive games on Web sites, (2) to persuade children to form positive attitudes toward food brands and products, and (3) to educate, teaching children healthy

eating habits as well as product related information (Lee & Youn, 2008). One of the functions of advergames is the educational role (Lee et al., 2009). For example, in the advergame for Burger King, children obtain points when they throw out junk food such as ice cream or snacks and when they obtain healthful foods such as yogurt and fruit. Researchers pay attention to the educational potential of advergames because enjoyable interactive games may grab children's attention and because game feedback and scoring results motivate children to continue to play (Garris et al., 2007). In spite of the potential of the educational function of advergames, fewer than 3% of the games appear to educate children about nutritional and/or health issues (Lee et al., 2009).

Emotional appeals through the use of animated characters, fantasies, jingles, and buoyant colors are often used in advergames. Online advergames have the potential to reach consumers, especially children, in highly influential ways. Advergames tend to employ features such as bold and/or colorful text, dynamic images (i.e., Flash, GIF, or JPEG-generated images), and animated characters or animations to attract children's attention (Alvy & Calvert, 2008; Lawrence, 2003). In their research on advergames, Alvy and Calvert (2008) showed that a majority of advergames contained bold/colorful text (98.3%), dynamic images (90.2%), and branded characters (over 90%). In addition, the sponsored advergames embed brand messages in entertaining animated adventures and fantasies (Moore & Rideout, 2007). Advertisers generally use branded characters in their advergames and they place company logos in the background of game scenes or sports equipment in games (Montgomery, 2007). Web sites for children are especially full of playful and involving content, leading to the brand immersion of children (Moore & Rideout, 2007).

Although previous research investigated descriptive characteristics of advergames, such as advertised food categories, brand integration, educational potential, and emotional appeals,

little research has focused on in-depth content analysis of the role of food brands and products in scoring systems. Previous research on brand integration explored the descriptive characteristics of the roles of brands, such as gaming tools or equipment or main objects or in the backgrounds of games (see Lee et al., 2009). But in-depth contents of brand integration in scoring systems remains uninvestigated. Advertisers may use advergame scoring systems to encourage children to consume junk foods, to persuade them to revisit the Websites to help them to become addicted to the games, to reinforce children's bad eating habits in advergames with voices or rewards, and to attract children with animated spokes characters and avatars. This study will examine those in-depth components of scoring systems to provide policy makers and researchers with insights about advergames.

The Limited Capacity of Children to Pay Attention to Advergames

Grabbing children's attention while they process advertised information is one of the most critical goals for advertisers. Generally, from early childhood through adolescence, children experience significant changes when processing advertising messages. In their early ages (birth to about age 2), children observe the perceptual features of advertisers' marketing tactics quickly, simply, and immediately (John, 1999). According to Piaget's theory of cognitive development, children in the preoperational stage (two to seven years) have poorly organized thinking about ideas or objects, concentrating only on simple and dominant dimensions of a stimulus (Roedder, 1981; Wackman, 1977). Since children between the ages three and four tend to concentrate on the peripheral cues of advertising and cannot distinguish commercials from television programs, they are more vulnerable than older children to the persuasive processes of commercials (Buijzen, 2007). Children between the ages of three and seven are the most susceptible to advertising because they lack the mature skill to recognize the persuasive nature of

commercials (Moore, 2000).

Food advertising aimed at children tends to be designed to obtain high levels of attention. Children in the early childhood stage (two to seven years) find advertising more attractive than do older children (about first grade to early adolescence) do, responding to advertising as a form of entertainment (Buijzen, 2007; More & Lutz, 2000). The common characteristics of commercials include animated characters, rhymes, catchy jingles, and short durations; those features increase young children's preferences in terms of television programs. Specialized visual and auditory means in commercials make babies (birth to about age 2) sensitive to these types of stimuli (Siegler, 1991; Cantor, 2001). The audio and visual cues of advertising are generally the most effective tools to communicate information to children (Maher, 2006).

Young children pay more attention to peripheral cues in advertising than to central elements (Moore, 2007). Younger children (two to seven years) may use cognitive heuristics or simple decision rules when responding to advertising messages because they lack motivation and ability to understand and process advertising information, as well as media literacy (Eagly & Chaiken, 1993; Livingstone & Helsper, 2006). According to the dual process theory of persuasion, people have two information processing routes (e.g., see the Elaboration Likelihood Model, Pettey & Cacioppo, 1986). The Elaboration Likelihood Model explains that people pay attention to message contents, and they pay attention to the quality of arguments, called the "central route" being persuaded by the message only if they are convinced about the value of the product or opinion. On the other hand, when people have low involvement to a product, they tend to find "peripheral cues," such as color, sound, emotion, and credibility, more appealing. The important conditions that make the difference between the central route and the peripheral route in the persuasion process are the level of motivation and ability to understand and process

the given information.

Since young children have low levels of motivation, ability, and media literacy, superficial or single dimensional information is more persuasive for them than message arguments (Livingstone & Helsper, 2006). Livingstone & Helsper (2006) maintained that the object of attention and the quality of that attention are more critical than the quantity of attention under the cognitive heuristics process. That is, the intensity of attention (the amount of cognitive capacity assigned for a particular task) and the selectivity of attention (the selective allotment of capacity to a particular task) are critical for young children to be persuaded by a message (Lee & Faber, 2007).

Children's understanding of advertising information in online entertainment media may be different from their understanding of advertising in traditional media. The most critical differences stem from the level of involvement and its influence on attention resources (Lee & Faber, 2007). While a television or movie viewer passively watches advertising, an online game player actively participates in games with high levels of attention (Nicovich, 2005). As a result, the effectiveness of persuasive messages embedded within the game context may be much weaker than in television advertising (Lee & Faber, 2007). Traditional advertisings in television conveys brand messages using the primary focal attention route to viewers. The persuasive messages in online games, however, are delivered along a peripheral attention route to game players because the focal purpose of the game is "playing the game" per se.

One of the most valuable theoretical perspectives to understand children's information processes when playing online advergames is the capacity theory of attention (Kahneman, 1973; Lynch & Srull, 1982; Lee & Faber, 2007). The capacity theory of attention assumes that people have a limited capacity to perform mental work in general. How one pays attention to acts and

objects is the most critical key in this theory. The amount of total capacity of attention is limited; it can be divided into two categories: attention capacity assigned to the primary task and spare capacity (Kahneman, 1973). Kahneman (1973) maintains that capacity devoted to primary task performance cannot be employed to achieve a secondary task. For example, if a person is asked to solve a convoluted operation of mental arithmetic while he or she is walking with a friend, he or she is likely to stop walking to perform the arithmetic calculations.

This concept is critical in order to understand the effects of advertising in online games on brand memory (Lee & Faber, 2007). When a game player plays online advergames, the primary task for is "playing the game." Processing brand messages embedded in the advergames becomes a secondary task (Grigorovici & Constantin, 2004; Lee & Faber, 2007). In their study of the effect of product placement in online games on brand memory, Lee and Faber (2007) maintained that the location of brand names in the advergame affected one's brand awareness and memory. The results indicated that the focal product placement (brand names appeared on the gates through which cars had to pass) generated superior brand recall and recognition of peripheral placement (brand names located in background billboards at the far left side of the track).

The primary task for children when they play advergames is to obtain high scores and complete the mission of the game. Because children have a limited capacity for attention, they may focus more on their primary task (obtaining scores) than on the secondary task (processing embedded brand messages within the game). Although several research studies have explored branded messages embedded in the backgrounds of advergames, which is closely related to the secondary task of gaming, few research studies have investigated persuasive messages embedded in the primary task, such as the scoring system.

This study will examine how marketers use scoring systems to persuade children to revisit online sites and to over consume unhealthful foods and beverages within the context of the game. Thus, investigating the persuasive components such as revisiting, food consumption, reinforcing, and animated spokes characters in scoring systems is valuable in that it can provide in-depth perspectives of the persuasion efforts that marketers use when targeting children.

Scoring Systems

Scoring systems and game feedback increase attention and motivate game players to engage in the game and revisit it (Garris et al., 2002).

Revisiting

Game designers have integrated food brand features in advergames to sustain children's attention and encourage them to revisit websites (Moore & Rideout, 2007). For example, advergames provide more difficult levels of game scoring stages after finishing one stage. Competition with other people is also often provided in the scoring system. Sending an interactive communication (email) regarding the player's scores and providing a game player's own ID in order to save his or her score for the next time are components that entice children to revisit the websites.

Consumption

One of the most criticized aspects of advergames is their repetitive brand exposure (Moore, 2006). Some advergames provide children with repetitive features of food-branded products during game play, leading to children's over-consumption. Distorted health information also sometime appears in advergames. For example, in some advergames, children get higher scores when they choose junk food than when they choose healthy food.

Advergames have the potential to be used as an educational tool because they are fun for children and high in interactivity. Educational messages can be integrated into the scoring system. For example, one could obtain a better score for eating healthy foods and throwing out unhealthy products. Moreover, if an avatar over-consumes calories, it could become obese.

Reinforcement

Some advergames reinforce game players with sounds and/or game rewards. For example, when a game player eats branded food with an animated avatar, a man's voice says, 'Yummy, that is delicious, mom!' Lee & Youn (2008) proposed that positive or negative feedback and high or low game scores are related to the game players' positive or negative feelings. Holbrook, Chestnut, Oliva, & Greenleaf (1984) found that positive feedback (winning or losing) on a video game affects a game player's attitude toward the game (positive or negative). In some food advergames, positive voice reinforcements are given when a game player clicks branded food products, such as candies or snacks. In other advergames, however, negative voice reinforcement (e.g., 'Oops, you lose!') is given when a game player loses the game or fails to satisfy game goals. The presence or absence of rewards is also critical for encouraging children to revisit the websites. In some advergames, product benefits or attribution-related rewards (e.g., product shape energy, points, etc.) are provided, whereas other advergames give educational purpose rewards (e.g., healthy-foods-related rewards, etc.) to a game player.

Animated characters

It is known that children pay substantial attention to "spokescharacters" embedded within television advertisements (Moore & Rideout, 2007). By the time they are two to three years old, children start to identify seen characters and demonstrate a desire for those animated

spokescharacters and related products in television, packaging, and promotion (Acuff & Reiher, 1997). Because of children's cognitive immaturity, character action and voice may influence a young child's attention to an ad, character, and product recognition, and may create a positive attitude toward the product (Neeley & Schumann, 2004). Piaget's stage theory (Piaget, 1951) suggested that children from two to seven years old (preoperational stage) rely on perceptual understanding, so perceptually salient and relevant messages, such as animated characters, can be more understandable and attractive for young children. In fact, young children do not even have the memory strategies available for use to cope with advertising containing animated characters (Neeley & Schumann, 2004; John, 1999).

The vulnerability of children to animated spokescharacters evokes ethical debate about using characters in advertising aimed at children. A main concern of policymakers and consumer groups is whether young children can distinguish programming from commercials and can recognize marketers' persuasive intent. Animated host-selling with a celebrity character in advertising is criticized because it interweaves programs and commercials to take advantage of the trust children place in program characters (Adler, 1980; Hoy, Young, & Mowen, 1986). The congruity between animated characters in television programs and spokescharacters in advertising may mislead children to believe what the character endorses. In recognizing the vulnerability of children, the FCC upholds the 'separation principle', which obligates networks to make a clear separation between program and commercial content in children's programming (FCC, 2006). In addition, the FCC prohibits host selling 'any character endorsement that has the effect of confusing a child viewer from distinguishing between program and non-program material' (FCC, 2006).

Studies on online food marketing, however, revealed that online host-selling using

animated spokescharacters are prevalent in advergames (Moore & Rideout, 2007). Food companies move their brand spokescharacters from television advertising to their marketing websites to entice more children. For example, marketers use branded characters such as SpongeBob Square Pants frequently to promote a particular product or brand, using the association between the character and the product. In their study of food marketing websites, Moore & Rideout found that almost half (47%) of the websites contained entertainment tie-ins (such as popular cartoon characters and their product associations).

One of the critical goals for marketers in using advergames is 'to enhance a brand personality with children' (Hunter, 2002). Weber, Story, & Harnack (2006) revealed that promotional characters in food marketing websites were pictures of sports figures (70%), pictures of celebrities (58%), spokescharacters (55%), cartoon characters (50%), and children depicted consuming the product (45%). Some advergames use product personification of spokescharacters, including a healthy food-shaped animated character (e.g., fruit) and a food product-shaped animated character (e.g., cereal, snack, etc.).

The most notable category in previous studies is the characters' behaviour, though unfortunately, few studies have examined the behaviour of animated spokescharacters in advertising. The behaviour of animated spokescharacters was coded with 'the character speaks of the product and/or provides visual demonstration of the product' (Callcott & Lee, 1994) in a previous study. It is important to examine the role of animated characters in advertising and their persuasive or educational behaviour.

Even though previous studies have investigated the types of animated spokescharacters in food marketing websites, little research reveals the behaviour of animated spokes-characters in advergames. The aspect that is most different between television advertising and online

advergames is the children's level of activity (Lee, Choi, Quilliam & Cole, 2009). Children are passive while watching television advertising, but they are active while playing an advergame. In particular, younger children can have a direct experience of branded messages in advergames with their own avatar. Considering the feeling of telepresence while playing advergames, the behaviour or role of animated characters is critical for children to learn in order to process branded messages in advergames. In addition, younger children may not be able to read and interpret nutritional information, indicating that more child-friendly approaches are required (Moore & Rideout, 2007).

To sum up, previous research in online food marketing and advergames has examined advergames generally, rather than looking in-depth at the role of the characters. This study will examine the in-depth content of the scoring system in advergames.

Research Questions

RQ1: What types of food and beverage products are most prevalent in advergames?

RQ2: What recurring components are most prevalent in the scoring systems of advergames?

RQ3: What consumption patterns are prevalent in the scoring systems of advergames?

RQ4: What types of reinforcement are most prevalent in the scoring systems of advergames?

RQ5: What behaviours of animated characters are most prevalent in advergames?

RQ6: Is there any relationship between food types and recurring components in the scoring systems of advergames?

RQ7: Is there a relationship between food types and food consumption components in the scoring systems?

RQ8: Is there a relationship between food types and reinforcement components in the scoring systems?

RQ9: Is there a relationship between the food types and the animated characters' behaviour in the scoring systems?

Method

A content analysis was conducted to evaluate the content of online advergames on food companies' websites.

Sample Materials

The current study adopted the sample that was used in Moore and Rideout (2007)'s study. Moore and Rideout selected food brands that had been heavily advertised to children. They selected 96 specific brands from each of these categories on the basis that they fell within the top 80%-85% of television advertising expenditures for that product class. For 14 of the original 96 brands, they found no websites meeting the decision criteria and they dropped them from all subsequent analyses. The most common method for locating a website was to search for a web address on the product package; the researchers identified 53% of the sites this way. Other successful approaches included (1) inserting a brand name into the address line of a web browser (47% of sites), (2) searching a firm's website for links to a children's site or game section (45%), and (3) reviewing the first ten results produced by inserting a brand name into the Google search engine (49%). They located 71% of the samples through two or more decision rules and some through as many as five or six. This search process produced 77 websites. Corporate-sponsored websites were included in the study sample if the primary audience was judged to be children ages 2-11 or if a site had content of interest to them (even if teen- or adult-focused content was

emphasized). Of the websites, 12% emphasized information for adults or parents, but child-oriented content was also embedded (often in a separate section). Others seemed to target teens directly (9%), but there were activities, such as games, music, and sports sponsorships, of interest to a younger audience as well. The remaining 11% contained some content for each of the three age groups. They excluded child-oriented sites that accepted food advertisements, but were sponsored by another firm, as well as sites not officially affiliated with a study brand. The final sample included a total of 77 websites.

After visiting these 77 website samples, the two research assistants found out that 10 websites do not provide their service anymore. Thus the final website samples of this study included 67 updated websites. Next, this study identified the games appearing on those websites from the food marketers targeting children. The two research assistants revisited the websites and attempted to find the original a total of 639 games. The number of games posted on each website ranged from zero to 80 in Moore and Rideout (2007)'s study. But the number of games appearing on each website ranged from zero to 203 in the current study. After playing 639 games, the two research assistants identified the games containing any brand identifier (e.g., the food item, a product package, a brand character, the brand logo, text of the brand name, and corporate logo). Among 639 advergames, 498 games (77.9%) were identified to contain at least one brand identifier. As the current study attempts to analyze brand integration in advergames scoring system, 141 games out of 639 games were excluded during the procedure of final sampling because they do not have any brand identifier. As a final step, a random number generator (www.randomizer.org) was used to randomly select 50% (N= 249) of the 498 games containing brand identifiers for content analysis. Among 249 games, seven games were removed from the subsequent analyses because they were not available anymore in the websites or fail to

be operated. Thus 240 games were included in the analysis. The final sample did not include games from all companies because of random selection.

Measurement

A content analysis was conducted in order to gain basic information on the content of revisiting components, the brand integration in scoring systems, and the behaviour of animated characters used in online advergames. This method has proven useful in the past for understanding the content of both print advertising and television commercials (e.g., Gross & Sheth, 1989; Hoy & Shaw, 1982; Stern & Resnik, 1991).

To obtain an extensive coding guideline, this study first reviewed in-game advertising and advergame-related articles, as well as television advertising-related articles published in academic studies, and identified the features of advergames, which have been recognized by researchers (Chaney et al., 2004; Chen & Ringel, 2001; Lee & Faber, 2007; Nelson, 2002; Nicovich, 2005; Schneider & Cornwell, 2005).

This study developed a three-part coding instrument. The first section focused on general aspects of the advergames, the second focused on the specific function of scoring systems in advergames, and the third was specific to animated spokescharacters used in advergames.

Coding systems

1. General aspects of advergames

Product categories will be defined as follows: (1) dairy (milk, cheese, yogurt, eggs), (2) meat and meat mixtures, bread/pasta (including rice and other grains), (3) breakfast foods (cereals, waffles/pancakes, breakfast pastries), (4) fruits/vegetables, (5) snack foods (popcorn, nuts, pretzels, chips, snack bars), (6) sweets (candy, frozen treats, desserts pastries), (7)

convenience entrees and meals, (8) soft drinks and artificially flavoured beverages (sodas, Kool Aid), (9) juices, (10) pizza/fast food restaurants, (11) family-style restaurants. The product manufacturer was coded with an open-ended question.

2. Specific details about advergames

1) Revisiting components

The presence of scoring systems in advergames will be coded first. Next, the factors that make children visit the food companies' websites continuously were coded with the following categories: (1) providing more difficult level of game stages after finishing one stage, (2) providing competition with other people, (3) sending an interactive communication (email), and (4) providing a game player's own ID and preserving his or her score for the next time, (5) Providing a game player a coupon or any other reward if certain score is satisfied, (6) Visitors are given suggestions for other games they might also enjoy, and (7) Providing 'Play Again' button after finishing one game.

2) Food consumption

The food consumption embedded in the scoring system was also coded. If the advergames provide children with repetitive features for a food-branded product during game play and lead children to over-consumption of branded food, it was coded 'yes'. In addition, the different type of brand identifiers or markes (e.g., the food item, a product package, a brand character, the brand logo, text of the brand name, corporate logo) were coded as (1) zero, (2) one, (3) two, (4) three, and (5) four or more. The presence/absence of food item in scoring system was coded with a 'branded food or non-branded food' category. Whether a gaming score was increased or decreased with taking food to get scores was also coded either 'score increases or score decreases'.

3) Reinforcement

The reinforcement components of the advergames scoring systems were coded with the presence/absence of sound cues of reinforcement: (1) (yes/no), (2) If 'yes' in #(1), when is it? (clicking diary/meat and meat mixtures/breakfast foods/fruits or vegetables/snack foods/ sweets/convenience entrees and meals/soft drinks and artificially flavoured beverages/juices/pizza or fast food restaurants/family-style restaurants), (3) The presence/absence of textual cues such as increase in energy or obtain food shape rewards (yes/no), and (4) If 'yes' in #(3), what type is it? (product benefits/attribution rewards /educational purpose rewards/other) categories.

4) Animated spokescharacters

First, the presence or absence of animated character spokespersons was coded with 'yes or no'. In addition, the location of the spokescharacter was coded with either 'avatar (in scoring system) or background of advergames'. Based on the previous research, the product personification of the animated spokescharacter was coded. Product personification was coded separately with the categories, either a healthy food shape or a branded food product shape. Whether the animated spokescharacter contains any brand identifiers (e.g., the food item, a product package, a brand character, the brand logo, text of the brand name, corporate logo) was coded 'yes or no'. Character behaviour was coded with four categories: (1) the character speaks for the product (product-explicit); (2) the character provides a visual demonstration of the product-usage related behaviour (product-implicit); (3) the character provides nutritional information (nutrition-explicit); and (4) the character provides a visual demonstration of the nutrition-related behaviour (nutrition-implicit). The character gender dimension has four

categories: male, female, both male and female, and unable to distinguish. Finally, the controllability of characters was coded either 'character is given/users can choose character among two or three characters/users can create and decide the specific feature of their characters'.

Coding Processes

Coders were trained to implement the coding system by reviewing the coding manual and practicing sessions that established acceptable inter-coder reliability levels.

Coders independently coded the randomized sample of 240 games. In addition, 20% of games were randomly selected for the purpose of assessing reliability. Inter-coder reliabilities raged from Cohen's Kappas of 0.81 to 1.00 for nominal data. Inter-coder reliabilities reported as Cohen's Kappa were as follows: Foods and beverage product category (.91), brand identifiers in advergames (0.89), animation, music or sound effect (1.00), the presence of scoring systems (1.00), brand integration in scoring systems (0.94), revisiting factors (0.90, 0.90, 1.00, 0.84, 0.90, 0.89), repetitive features of food-branded product (1.00), different types of brand identifiers appear during obtaining scores (0.85), The presence of food product in scoring system (1.00), increase or decrease of scores (1.00), product category in obtaining scores (1.00), sound cues reinforcement (0.94), condition of sound cues provided (0.96), textual cues reinforcement (0.85), type of textual cues (0.90), the presence or absence of animated character (1.00), type of spokescharacter (1.00), product personification of spokescharacter (1.00), brand identifiers in the animated spokescharacter (0.90), the character speaks for the product (0.94), the character speaks for the product explicit or implict (1.00), nutritional information (1.00), the type of nutritional information (1.00), character gender (1.00), and character controllability (0.96).

Data analysis

This study used the advergame as units of analysis. Data were analyzed in the forms of descriptive statistics and cross-tabulations. Chi-square analysis also was used to reveal the relationship between two related variables. Food and beverage types were computed as (1) Snacks, sweets, breakfast foods, soda and artificial flavoured drinks, and (2) fruits and vegetables and diary foods to run Chi-square test.

Data were analyzed in terms of presence of scoring systems, food consumption and revisiting factors in scoring system, and the characteristics of animated spokes characters in advergames.

Results

Data were analyzed for presence of scoring system, food consumption, revisiting factors in scoring systems, and the characteristics of animated spokescharacters in advergames.

Descriptive Statistics

This study examined a sample of 67 websites of popular food companies targeting children. Overall, 36 (53.7%) websites in this study posted one or more games with a food brand identifier. Fewer advergames were found than in Moore and Rediout's (2007) study (73%); however, the range of games at each website was greater (1–203 games on a site versus 1–67 in Moore and Rediout's study).

Among 11 food and beverage product categories, sweets (candy, frozen treats, dessert pastries) were the most prevalent among food companies' websites (n = 17, 25.8%). A majority of foods featured on food companies' websites aimed at children were also categorized as snack

foods (*n* = 15, 22.7%) and breakfast foods (cereals, waffles/pancakes, breakfast pastries) (*n* = 9, 13.6%).

Brand exposure

Users can be exposed to a brand in a game in a number of ways; for example, a game player sometimes faces pictures of food items in a game such as candy, cereal in a bowl, or a snack bar. In addition, basic brand identifiers are shown that later remind users of a brand. This study examined the presence or absence of basic brand identifiers, including food item, product package, a brand character, brand logo, text of the brand name, and corporate logo. The most common brand identifier appearing in advergame was the brand logo (*n* = 225, 93.8%), followed by text of the brand name (*n* = 222, 92.5%) (Table 1).

Table 1. Descriptive statistics for brand identifiers in advergames

	Food item	Product package	Brand character	Brand logo	Text of the brand name	Corporate logo
Yes	111 (46.2%)	85 (35.4%)	102 (42.5%)	225 (93.8%)	222 (92.5%)	76 (31.7%)
No	129 (53.8%)	155 (64.6%)	137 (57.1%)	15 (6.2%)	18 (7.5%)	164 (68.3%)
Total	240 (100%)	240 (100%)	240 (100%)	240 (100%)	240 (100%)	240 (100%)

A majority of games (*n* = 222, 92.5%) embedded animation, music, or sound effects for users, with 7.5% (*n* = 18) of games having no animation, music, or sound effects. In addition, 77.5% (*n* = 186) of games had a scoring system, whereas 7.7% (*n* = 51) of games used other types of goals, such as completing a mission in a limited time. Brand integration of advergames was also investigated in this study. Different types of brand integration in scoring systems were

examined, including "primary objects," where brands were used as the primary objects children had to get to win the game, "secondary objects," where children were required to use brand identifiers (e.g., brand logo, product package features, brand characters), or "other." The results showed that 31.7% (n = 59) of games used brand identifiers as the primary objects, and 7.5% (n = 14) used brand identifiers as secondary objects.

Prevalence of food categories in advergames

The first research question (RQ1) asked, "what types of food and beverage products are most prevalent in advergames?" The results indicated that the "sweets" category appeared most frequently in advergames (n = 219, 34.2%) and "snack foods" were the next most prevalent (n = 180, 28.1%). "Breakfast foods" (n = 135, 21.1%) and "soft drinks and artificially flavored beverages" (n = 40, 6.3%) were also identified as prevalent food categories appearing in advergames (Table 2).

Table 2. Descriptive statistics for categories of advergames

		Number of websites	Number of advergames
Category of food and beverage product	Dairy	4 (6.2%)	6 (1%)
	Meat and meat mixtures, bread/pasta	2 (3%)	7 (1.1%)
	Breakfast foods	9 (13.6%)	135 (21.1%)
	Fruits/vegetables	0 (0%)	0 (0%)
	Snack foods	15 (22.7%)	180 (28.1%)
	Sweets	17 (25.8%)	219 (34.2%)
	Convenience entrées and meals	2 (3%)	12 (1.8%)
	Soft drinks and artificially flavored beverages	8 (12.1%)	40 (6.3%)
	Juices	3 (4.6%)	14 (2.2%)
	Pizza/fast food restaurants	5 (7.6%)	26 (4%)
	Family-style restaurants	1 (1.5%)	0 (0%)
	Total	66 (100%)	639 (100%)

Revisiting components of advergames

Research question 2 asked what revisiting components were most prevalent in the scoring systems of advergames. Among 186 advergames with scoring systems, 33% (*n* = 61) provided a more difficult level to users. In addition, 67.6% (*n* = 125) included competition with other people in scoring and 73% (n = 135) of the advergames offered a game player his or her own ID and ability to save a score with a game player's ID for the next visit. Results showed that 99.5% (*n* = 184) of the advergames offered a "play again" feature to encourage consumers to continue playing. Moreover, 47% (*n* = 87) of the advergames suggested other types of games the player might also like to try, and 22.7% (*n* = 42) of games provided coupons or other rewards if he or she reached a certain level of score.

Virtual food consumption in advergame scoring systems

Further, this study explored food consumption patterns in the scoring systems of advergames (RQ3). From a food marketer's perspective, advergames have the potential to draw consumers' attention to a brand in a playful way, over an extended period of time (Moore & Redious, 2007). Of 186 advergames with scoring systems, 46.2% (*n* = 84) showed repetitive features of branded-food products during the process of making points on a score. The results revealed that 37.1% (*n* = 69) of advergames gave points to consumers when they virtually ate, touched, erased, or hit food features in a game. Among 69 advergames, 88.6% (*n* = 62) contained a branded food product as the primary or secondary object for gaining points, whereas 10% (*n* = 7) included nonbranded natural foods such as fruits or vegetables as primary or secondary objects for increasing scores. Only 2.9% (*n* = 2) of advergames decreased a game player's score when he or she virtually ate, touched, erased, or hit branded food product features such as ice cream or candy.

Reinforcement cues in scoring systems

Research question 4 asked what types of reinforcement are most prevalent in the scoring systems of advergames. Among 186 advergames, 37.1% (n = 69) contained sound cues when a player virtually consumed the food product to gain points, while 28.5% (n = 53) included textual cues in virtual food consumption. That is, more sound cues were provided than textual cues to reinforce an indirect experience of food consumption for game users. Among 53 advergames providing textual cues, 69.2% (n = 36) offered textual cues with a type of product benefit or attribution-related rewards (e.g., product shape bonus, product-related energy, points, etc); however, 15.4% (n = 8) of the games offered non-branded or natural food benefits or attributes as textual cues.

Animated character behavior

Research question 5 addressed the most prevalent behavior of animated characters in advergames. The results showed that 56.5% (n = 105) of 186 advergames featured animated characters. The role of animated spokescharacters in scoring systems was examined in this study. Among 105 advergames with animated characters, 82.9% (n = 87) used an animated character as an "avater." In addition, 15.2% (n = 16) of characters were used as background for the game. Product personification of animated characters was also investigated. It was found that 18.1% (n = 19) of the animated characters in advergames were branded food product shapes, whereas 1.9% (n = 2) of spokescharacters were natural, nonbranded food shapes such as fruits or vegetables. Results of the current study showed that 21.5% (n = 40) of the animated characters spoke for branded food products, either explicitly (n = 1, 2.5%) or implicitly (n = 39, 97.5%). Moreover, 6.1% (n = 6) of the animated spokescharacters provided implicit nutritional information or demonstration to a game player.

It is worth reporting that "male" animated characters were more prevalent (n = 41, 33.6%) than "females" (n = 6, 4.9%). In addition, 75% (n = 91) of the animated characters were provided to customers, while 24.8% (n = 30) provided character customization.

Food categories and advergame components in scoring systems

Consumer groups and parents of children have criticized online games because advergames often appear on websites that promote foods low in nutrition and high in calories. This study explored the relationship between the categories of food and beverage products and immersive marketing tactics in scoring systems.

Research question 6 asked about the relationship between food types and recurring components in the scoring systems of advergames. The results showed there are no significant differences in revisiting components offered by various product and beverage categories (Table3).

Table 3. Revisiting components by food and beverage product category

		Product Category		
		Snack, Sweets, soda, and others	Vegetables, diary, and fruits	Total
Number of Revising factors	1	40 (26.1%)	14 (26.4%)	54 (26.2%)
	2	97 (63.4%)	34 (64.2%)	131(63.6%)
	3	16(1.5%)	5 (9.4%)	21 (10.2%)
	Total	153 (100%)	539 (100%)	206 (100%)

Chi-square = 0.45 (df = 2, p = 0.978)

Further, this study explored a relationship between food types and food consumption components in scoring systems (RQ7). The results showed that there is no significant differences

between product and beverage categories in terms of providing branded foods in scoring systems of advergames (χ^2 = .681, *df* = 1, *p* = .409) (Table 4).

Table 4. Branded and non-branded food features in scoring systems by food and beverage product category

		Product Category		
		Snack, Sweets, soda, and others	Vegetables, diary, and fruits	Total
Food features in scoring systems	Branded food product	49 (92.5%)	19(86.4%)	68(90.7%)
	Non-branded food product	4(7.5%)	3(13.6%)	7(9.3%)
	Total	53(100%)	22(100%)	75(100%)

Chi-square = .681 (*df* = 1, p = .409)

Table 5. Sound cue reinforcement in scoring systems by food and beverage product category

		Product Category		
		Snack, Sweets, soda, and others	Vegetables, diary, and fruits	Total
Food features in scoring systems	Branded food product	50 (89.3%)	21 (91.3%)	71(89.9%)
	Non-branded food product	6(10.7%)	2 (8.7%)	8(10.1%)
	Total	56(100%)	23 (100%)	79 (100%)

Chi-square = .073 (*df* = 1, p = .787)

Research question 8 asked, "Is there a relationship between food types and reinforcement cues in the scoring systems?" The results of this study showed no differences among different product categories in terms of providing sound cues (χ^2 = .073 , *df* = 1, *p* = .787) or textual cues (χ^2 = .021, *df = 1, p* = .421) when a game player virtually consumed food product features in the advergames to increase game scores (Table 5).

Finally, research question 9 addressed the relationship between food types and animated characters' behaviour in scoring systems. Consistent with other research questions, there is no significant difference between food and beverage product categories in terms of animated spokescharacter's behaviour (χ^2 = 0.00, *df* = 1, *p* = 0.997) (Table 6).

Table 6. Animated character's behaviour by food and beverage product category

		Product Category		
		Snack, Sweets, soda, and others	Vegetables, diary, and fruits	Total
Does spokescharacter spoke for branded food product?	Yes	32 (40.5%)	15 (40.5%)	47(40.5%)
	No	47 (59.5%)	22 (59.5%)	69 (50.5%)
	Total	79 (100%)	37(100%)	116 (100%)

Chi-square = 0.000 (*df* = 1, *p* = 0.997)

Research Question Results

RQ1: "What types of food and beverage products are most prevalent in advergames?" The most prevalent product category (25.8%) in advergame samples was sweets (candy, frozen treats, desserts pastries). Snack foods (22.7%) and breakfast foods (13.6%) were also very prevalent in advergames.

RQ2: "What recurring components are most prevalent in the scoring systems of advergames?" The most prevalent revisiting component to advergames consumers was the "play again" button (99.5%). Offering a game player's own ID (73%) and providing competition with other people in a scoring board (67.6%) were also common revisiting components of advergames.

RQ3: "What consumption patterns are prevalent in the scoring systems of advergames?" Of 186 advergames, 46.2% showed repetitive products featuring branded-food product during obtaining scores. In addition, 37.1% of the advergames provided consumers scores when they eat, touch, erase, or hit the food features in the advergames. A majority of the advergames (88.6%) contained branded food products as the primary or secondary objects to increase scores, while 2.9% of advergames included natural foods in scoring systems.

RQ4: "What types of reinforcement are most prevalent in the scoring systems of advergames?" Of 186 advergames, 37.1% of the games provided sound cues when game users virtually consumed the food products in order to obtain scores. In addition, 28.5% of advergames contained textual cues in scoring systems.

RQ5: "What behaviours of animated characters are most prevalent in advergames?" Among 105 advergames that provided animated characters, 21.5% spoke for the branded food

products either explicitly (2.5%) or implicitly (97.5%), while 6.1% of them spoke for natural foods.

RQ6: "Is there any relationship between food types and recurring components in the scoring systems of advergames?" There were no significant differences among food categories in terms of recurring components in advergames.

RQ7: "Is there a relationship between food types and food consumption components in the scoring systems?" This study shows that there are no significant differences among the different food product types in the scoring systems of advergames.

RQ8: "Is there a relationship between food types and reinforcement components in the scoring systems?" There was no difference among food product types regarding reinforcement cues in scoring systems.

RQ9: "Is there a relationship between the food types and the animated characters' behaviour in the scoring systems?" This study revealed that there was no significant difference among food product types regarding animated spokecharacter's behaviour in the advergames.

Discussion and Conclusion

Discussion and Conclusion

This study examines advergames content in popular food companies' websites that target children. The study focuses specifically on virtual food consumption, revisiting components, and animated spokescharacters in scoring systems of the advergames. Considering the public's limited attention span, this study assumes that children and game players may focus more on the brand information embedded in scoring systems in advergames than they would to the

advergames background. Repetitive exposure to the food brand identifiers in advergames scoring systems may influence children to be more familiar with the brand and to be reminded of the brand when they see that brand on the market.

First, the most significant results in this study include the fact that snacks and sweets were the most prevalent food product categories on companies' websites; however, dairy foods, such as milk or eggs, and fruits/vegetables were not prevalent on the websites. While some healthy snacks that are nutritious and low in calories, a majority of snacks and sweets have a high calorie count and few nutrients. In addition, a majority of these advergames contain repetitive branded food product features in their scoring systems. This implies that children who play advergames on food companies' website can be easily exposed to immersive marketing of these unhealthy foods. In addition to the brand exposure during game play, there was an average of three different types of brand identifiers in the advergames; thus, there is evidence of continuing brand exposure for children who play a game on a website for snacks or sweets.

Second, these results indicate that brand integration in scoring systems of advergames were prevalent. For example, game players were exposed to branded food items when they attempted to increase their gaming scores by virtually eating, touching, and hitting the food items as a part of the game. A majority of games (92.5%) contained various types of brand integration in the scoring system, providing brand identifiers as either "primary objects", or "secondary objects". For example, 88.6% of the advergames contain the features of branded food products as the way in which to earn points. Virtual and indirect experiences with food consumption in the advergames scoring system were more prevalent in snacks, sweets, and breakfast foods than they were in the diary and fruits/vegetables categories.

Not surprisingly, a majority of the advergames provided revisiting components to allow

consumers to revisit the website. The results showed indicated that a majority of sweets, snack foods, and breakfast foods advertisers provided consumers revisiting components such as difficult level of the game, competition with other players, offering a game player's own ID, and placing "play again" button at the end of the games. Advergames for diary and fruits/vegetables provided less revisiting components than did those for snacks, sweets, and breakfast foods.

The findings further demonstrate that animated spokescharacters spoke for the product more implicitly and explicitly for the breakfast foods, sweets, snacks, and dairy foods than for fruits and vegetables. It is known that children pay substantially more attention to "spokescharacters" that are embedded within television advertisements (Moore & Rideout, 2007). Even though several spokescharacters in advergames spoke for dairy foods such as milk, few spoke for fruits and vegetables, and nutritional messages were rarely provided to children.

This study also indicates that, despite the educational potential of using advergames on their websites, many advertisers did not make use of such potential. Advergames can be used as an educational tool for children's food consumption because it can easily draw children's attention with the use of animation and sound effects. However, there is limited usage of advergames with regard to providing food-related educational messages for children: only 14.3% of fruits and vegetables food products appeared in scoring systems in this study. Thus, the use of advergames should be extended as an educational tool to children.

Overall, the findings in this study are consistent with those from other food marketing research, indicating more foods advertisers in sweets, snacks, and breakfast foods industries providing advergames to children on websites. Only a few dairy and vegetable foods appeared on advergames as primary or secondary objects in scoring systems; more educational efforts are needed in order to maximize the potential of advergames as a medium for public health

communication.

Limitations and Future Study

Although analyzing the websites of heavy advertisers to children's television programs was appropriate for this study, certain characteristics were less frequently found because some companies using these features may be not included in this study. Thus, the findings of this study may not be representative of all advergames on the food companies' website on the Internet. Future study is needed on the exhaustive lists of companies to examine whether the findings in this study can be generalized.

Another limitation of content analysis is that it cannot illustrate how consumers perceive and interact with media. Therefore, future experiments will be needed in order to reveal the casual relationship between the immersive marketing tactics in advergames and children's food preferences and eating behaviours.

Finally, this study can be used as a guideline for future studies that will examine which content elements of online food advergames can influence children's food preferences and food consumption behaviours. To date, despite the potential and importance of evaluating online advergames content, there have been few studies evaluating advergames content based on theories. These additional studies could assist CARU guidelines for self-regulation of online food advergame practices targeting children, which transfers more broadly into implications for public health.

References

Acuff, D. S., & Reiher, R. H. (1997). *What kids buy and why* Free Press.

An, S., & Stern, S. (In press). Mitigating the effects of advergmaes on children: Do advertising breaks work? *Journal of Advertising*.

Adler, R. (1980). *The effects of television advertising on children: Review and recommendations* Lexington Books.

Alvy, L. M., & Calvert, S. L. (2008). Food marketing on popular children's web sites: A content analysis. *Journal of the American Dietetic Association, 108*(4), 710-713.

Buijzen, M. (2007). Reducing children's susceptibility to commercials: Mechanisms of factual and evaluative advertising interventions. *Media Psychology, 9*(2), 411-430. doi:10.1080/15213260701291361

Center for Disease Control and Prevention (2004). Overweight among U.S. Children and Adolescents. National Health and Nutrition Examination Survey, http://www.cdc.gov/nchs/data/nhanes/databriefs/overwght.pdf (accessed January 7, 2010).

Callcott, M. F., & Lee, W. N. (1994). A content analysis of animation and animated spokes-characters in television commercials. *Journal of Advertising, 23*(4), 1-12.

Cantor, J. (2001). The media and children's fears, anxieties, and perceptions of danger. *Handbook of children and the media* (pp. 207-221). Sage Publications, Inc.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes* Harcourt Brace Jovanovich College Publishers Fort Worth, TX.

FCC (2006), "Children's Educational Television," Available at http://www.fcc.gov/cgb/consumerfacts/childtv.html (accessed October 30, 2009).

Garris, R., Ahlers, R., & Driskell, J. E. (2002). Games, motivation, and learning: A research and practice model. *Simulation & Gaming, 33*(4), 441.

Grigorovici, D. M., & Constantin, C. D. (2004). Experiencing interactive advertising beyond rich media: Impacts of ad type and presence on brand effectiveness in 3D gaming immersive virtual environments. *Journal of Interactive Advertising, 5*(1), 1-22.

Holbrook, M. B., Chestnut, R. W., Oliva, T. A., & Greenleaf, E. A. (1984). Play as a consumption experience: The roles of emotions, performance, and personality in the enjoyment of games. *The Journal of Consumer Research, 11*(2), 728-739.

Hoy, M. G., Young, C. E., & Mowen, J. C. (1986). Animated host-selling advertisements: Their impact on young children's recognition, attitudes, and behavior. *Journal of Public Policy & Marketing, 5*, 171-184.

Hunter, B. T. (2002). Marketing foods to kids: Using new avenues. *Consumers' Research Magazine, 85*(4), 23-25.

Institute of Medicine of the National Academies (2005). *Food marketing to children and youth: threat or opportunity*. Washington. DC: National Acmedmies, Available at http://www.iom.edu/~/media/Files/Report%20Files/2005/Food-Marketing-to-Children-and-Youth-Threat-or-Opportunity/KFMGlosssary2906.ashx. Retrieved December 1, 2009.

Janiszewski, C. (1988). Preconscious processing effects: The independence of attitude formation and conscious thought. *The Journal of Consumer Research, 15*(2), 199-209.

Janiszewski, C. (1990). The influence of print advertisement organization on affect toward a brand name. *The Journal of Consumer Research, 17*(1), 53-65.

John, D. R. (1999). Consumer socialization of children: A retrospective look at twenty-five years of research. *Journal of Consumer Research, 26*(3), 183-213.

Kahneman, D. (1973). *Attention and effort.* New Jersey, Prentice Hall.

Kanth, K. R. (2010). Catch them young with advergaming. *Business Standard*, Available at http://www.business-standard.com/india/news/catch-them-youngadvergaming/381926/ (accessed January 26, 2010).

Koplan, J., Liverman, C. T., & Kraak, V. I. (2005). *Preventing childhood obesity: Health in the balance*. National Academy Press.

Lawrence, D. (2003). The role of characters in kids marketing. *Young Consumers, 4*(3), 43-48.

Lee, M., Choi, Y., Quilliam, E., & Cole, R. (2009). Playing with food: Content analysis of food advergames. *The Journal of Consumer Affairs, 43*(1), 129.

Lee, M., & Faber, R. J. (2007). Effects of product placement in on-line games on brand memory. *Journal of Advertising, 36*(4), 75-90.

Livingstone, S., & Helsper, E. J. (2006). Does advertising literacy mediate the effects of advertising on children? A critical examination of two linked research literatures in relation to obesity and food choice. *Journal of Communication, 56*(3), 560.

Lynch, J., J.G., & Srull, T. K. (1982). Memory and attentional factors in consumer choice: Concepts and research methods. *Journal of Consumer Research, 9*(1), 18.

Mallinckrodt, V. & Mizerski, D. (2007). The effects of playing an advergame on young children's perceptions, preferences, and requests. *Journal of Advertising, 36* (2), 87-100.

Montgomery, K. C. (2001). Handbook of children and the media. In D. G. Singer, & J. L. Singer (Eds.), (pp. 635-648) Sage Publications, Inc., 2455 Teller Road, Thousand Oaks, CA

91320. Tel: 805-499-0721; Fax: 805-499-0871; e-mail: order@ sagepub. com; Web site: http://www. sagepub. com ($99.95).

Montgomery, K. C., & Chester, J. (2009). Interactive food and beverage marketing: Targeting adolescents in the digital age. *Journal of Adolescent Health, 45*(3S), 18-29.

Moore, E. S. (2006). It's child's play: Advergaming and the online marketing of food to children. *Menlo Park, Calif.: Kaiser Family Foundation.*

Moore, E. S., & Lutz, R. J. (2000). Children, advertising, and product experiences: A multimethod inquiry. *Journal of Consumer Research, 27*(1), 31-48.

Moore, E. S., & Rideout, V. J. (2007). The online marketing of food to children: Is it just fun and games? *Journal of Public Policy & Marketing, 26*(2), 202-220.

Neeley, S. M., & Schumann, D. W. (2004). *Using animated spokes-characters in advertising to young children: Does increasing attention to advertising necessarily lead to product preference?*

Nelson, M. R. (2002). Recall of brand placements in Computer/video games. *Journal of Advertising Research, 42*(2), 80-93.

Nestle, M. (2006). Food marketing and childhood obesity--a matter of policy. *New England Journal of Medicine, 354*(24), 25-27.

Nicovich, S. G., Boller, G. W., & Cornwell, T. B. (2005). Experienced presence within computer-mediated communications: Initial explorations on the effects of gender with respect to empathy and immersion. *Journal of Computer-Mediated Communication, 10*(2), article 6.

Petty, R. E., & Cacioppo, J. T. (1986). Communication and persuasion: Central and peripheral routes to attitude change. Springer.

Piaget, J. (1952). The origins of intelligence in children (trans. M. cook) New York: International Universities Press.

Roedder, D. L. (1981). Age differences in children's responses to television advertising: An information-processing approach. *Journal of Consumer Research, 8*(2), 144-153.

Siegler, R. S., & Crowley, K. (1991). The microgenetic method: A direct means for studying cognitive development. *American Psychologist, 46*(6), 606-620.

Styne, D. M. (2001). Childhood and adolescent obesity prevalence and significance. *The Pediatric Clinics of North America, 48*(4), 823-854.

Wackman, D. B., & Wartella, E. (1977). A review of cognitive development theory and research and the implication for research on children's responses to television. *Communication Research, 4*(2), 203-204.

Weber, K., Story, M., & Harnack, L. (2006). Internet food marketing strategies aimed at children and adolescents: A content analysis of food and beverage brand web sites. *Journal of the American Dietetic Association, 106*(9), 1463-1466.

Appendix A - Enter Your Appendix Title Here

I. General aspects of advertising

1. Product category

(1) Dairy (milk, cheese, yogurt, eggs)
(2) Meat and meat mixtures, bread/pasta (including rice and other grains)
(3) Breakfast foods (cereals, waffles/pancakes, breakfast pastries)
(4) Fruits/vegetables
(5) Snack foods (popcorn, nuts, pretzels, chips, snack bars)
(6) Sweets (candy, frozen treats, desserts pastries)
(7) Convenience entrees and meals
(8) Soft drinks and artificially flavoured beverages (sodas, Kool Aid)
(9) Juices
(10) Pizza/fast food restaurants
(11) Family-style restaurants. (#34)

2. Manufacturer

(Open ended question) _____

3. Does the website provide advergames? (1) Yes (2) No

3-1. If Yes in #3, how many advergames does the website have? _____

4. The number of food brands present on a website _____

5. Does the website provide any membership? (1) Yes (2) No

6. Should users register to play games in the website? (1) Yes (2) No

7. Parental permission

(1) Email sent to parent with response required
(2) Email sent to parent who then needs to go to the site and provide credit card information (to verify their adult status)
(3) Written parental permission required
(4) Other
(5) Parental permission is not required

II. Specific details about scoring systems in advergames

1. The presence or absence of basic brand identifiers (or marks) in games

1-(1) The food item (e.g., Capn'Crunch cereal in a bowl) (1) Yes (2) No
1-(2) A product package (1) Yes (2) No
1-(3) A brand character (if any) (1) Yes (2) No
1-(4) The brand logo (1) Yes (2) No
1-(5) Text of the brand name (1) Yes (2) No
1-(6) Corporate logo (1) Yes (2) No

2. Does the advergames include animation, music or sound effects?

(1) Yes (2) No

3. The presence of scoring systems

(1) Yes (2) No

4. Brand integration in scoring systems

(1) Secondary objects; Children are required to use brand identifiers (e.g., brand logo, product package features, brand characters, etc.) as tools or equipment
(2) Primary objects; Brands are used as primary objects that children are required to obtain in order to win the game
(3) Other

5. Revisiting factors (Addiction-related components)

1) Providing more difficult level of game stages after finishing one stage
(1) Yes (2) No
2) Providing competition with other people
(1) Yes (2) No
3) Sending an interactive communication (email)
(1) Yes (2) No
4) Providing a game player's own ID and preserving his/her score for the next time
(1) Yes (2) No
5) Providing a game player a coupon or any other reward if certain score is satisfied
(1) Yes (2) No
6) Visitors are given suggestions for other games they might also enjoy
(1) Yes (2) No

7) Providing 'Play Again' button after finishing one game

(1) Yes (2) No

6. Consumption

1) Providing children with repetitive features of food-branded product during playing game (leading to over-consumption)
   (1) Yes (2) No

2) How many different type of brand identifiers or marks (e.g., the food item, a product package, a brand character, the brand logo, text of the brand name, corporate logo) appear during obtaining scores?
   (1) 0 (2) 1 (3) 2 (4) 3 (5) 4 or more

3) Do users use any food product features to obtain scores?
   (1) Users use branded-food features to obtain scores
   (2) Users use non-branded food features to obtain scores

4) When users obtain food features or food-related item, does the score increase or decrease?
   (1) Increase (2) Decrease

7. Reinforcement

1) The presence/absence of voice cues reinforcement
   (1) Yes (2) No

2) If yes in # (1), when is it?
   (1) Clicking healthy food (2) Clicking branded product (3) Other

3) The presence/absence of textual cues reinforcement
   (1) Yes (2) No

4) If yes in # (3), what type is it?
   (1) Product benefits/attribution rewards (e.g., product shape, energy, points, etc.)
   (2) Educational purpose rewards (e.g., healthy foods related rewards, etc.)
   (3) Other

8. Animated characters

1) The presence or absence of animated character/spokesperson

   (1) Yes (2) No

2) Location of spokescharacter

(1) Avatar (in scoring system)
(2) Background of advergames
(3) Other

3) Product personification of spokecharacters

(1) Is it a healthy food shape (e.g., fruit)?
(1) Yes (2) No
(2) Is it a food product shape (e.g., cereal, snack, etc.)?
(1) Yes (2) No
(3) Other
(1) Yes (2) No

4) Character behaviour

(1) The character speaks for the product (product-explicit) (1) Yes (2) No

(2) The character provides a visual demonstration of the product-usage related behaviour (product-implicit) (1) Explicit (2) Implicit (3) Not applicable

(3) The character provides nutritional information (nutrition-explicit)

(1) Yes (2) No

(4) The character provides a visual demonstration of the nutrition-related behaviour (nutrition-implicit) (1) Explicit (2) Implicit (3) Not applicable

5) Character gender

(1) Male
(2) Female
(3) Both male and female
(4) Unable to distinguish

6) Character controllability

(1) Character is given
(2) Users can choose their characters among given two or three characters
(3) Users can create and decide their own character feature

Appendix B - Lists of Websites

Lists of Websites	
3musketeers.com	luckycharmsfun.com
7up.com	lunchables.com
airheads.com	millsberry.com
applejacks.com	mountaindew.com
bk.com	mycoke.com
bubblegum.com	mypasta.com
bubbletape.com	nabiscoworld.com
butterfinger.com	nestlecrunch.com
candystand.com	nesquik.com
capncrunch.com	nutritioncamp.com
caprisun.com	pepsi.com
cheetos.com	pfgoldfish.com
chefboy.com	popsicle.com
chuckecheese.com	poptarts.com
danimalsxl.com	postopia.com
dannon.com	pringles.com
dewbajablast.com	ronald.com
doritos.com	sillyrabbit.millsberry.com
drpepper.com	skittles.com
frootloops.com	smuckers.com
funkyfaces.com	snickers.com
gotmilk.com	sprite.com
hersheys.com	starburst.com
jello.com	subway-kids.com
juicyjuice.com	sunnyd.com
juicyfruit.com	thechesiest.com
keebler.com/brand/onthegosnacks	tonythetiger.com
kelloggsfunktown.com	topps.com
kfc.com	twinkies.com
kids.icecream.com	us.mms.com
kool-aid.com	wendys.com
lifecereal.com	whymilk.com
littledebbie.com	wonderball.com
	wonka.com